Considerations for proposed Land-Disturbing Activities

Plan requirements start to finish

1. These concepts and considerations work for large properties, and small single lots as well. (please see #61-62 & 64-65 below regarding single family lots)
2. Owner, Contractor / Builder, and Design Professional(s) all walk site -- do not just "windshield it". The Design Professional should always walk the entire site prior to design.
3. Conceptually plan / layout basin locations diversions, grassed waterways, prior to layout of property. Use concept sketch to rough in size / volume.
4. For single family lots, consider small sediment traps in lieu of silt fence.
5. Consider brush barriers in lieu of silt fence.
6. Consider terracing and grading options in lieu of more expensive structural controls.
7. Check "red flag" areas where discharge will leave the property. Will off site properties be adversely affected? Consider how surface water flows will affect the design property and offsite properties both "during" and "after".
8. Pay attention in plan design to consider discharge points per NPDES. Remember, fewer discharge points equals possible lessened monitoring costs. Check with a qualified design professional familiar with monitoring and NPDES requirements. -- this may save substantial money.
9. Prepare Land Disturbing Activity (LDA) plan, and submit to Issuing Authority (County/City/EPD) with necessary copies. IA will submit plans for review to the local Soil and Water Conservation District (SWCD) USDA - NRCS office. (or in metro Atlanta Counties -- only -- to the Athens State Office of the Georgia Soil and Water Conservation Commission).
10. Prepare a plan to also include the requirements for NPDES General Permit GAR100000 for Storm Water Discharges Associated with Construction Activities.
11. Plans may be denied and sent back for revisions, or the design professional notified to make minor changes, or approved by the District. Note: District approval is not "official" until signed by District Supervisor.
12. Submit to EPD all Variance requests for work proposed within buffers of streams / State Waters in accordance with the E&S Act as amended and Chapter 391-3-7. Note on the plan either the 25' warm water, or 50' trout water buffers. Provide copy of approved variance, or letter stating none necessary to Issuing Authority.
13. If wetlands are impacted by proposed development, contact U.S. Army Corps of Engineers for applicable permit requirements.
14. Plans must provide for sediment basins per the Manual and the NPDES General Permit GAR1000000. Design for entire drainage area in accordance with NPDES. Remember, basins must be designed for "during construction" as well as "after" to ensure their adequacy as construction proceeds.
15. Submit a Notice of Intent (NOI) per NPDES when entire project area -- not just disturbed area -- is greater than 5 acres. (Note: for greater than 50 acres, plans must accompany the NOI. And a Special Permit is required for greater than 250 acres total project area.)

16. The Issuing Authority may request a copy of the NOI. Upon receipt of the approval from the District, the Issuing Authority may issue a LDA Permit. However, additional revisions to the plans may be requested by the Issuing Authority in addition to those from the District. NO land disturbing activities or any kind may occur on the site, including logging, until the LDA permit is issued.
17. Plans must follow at least the requirements of the newest checklist issued Feb 14, 2002 -- to revise those in 5th Edition of Manual.
18. As should be noted on the plans, *"The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land-disturbing activities."*
19. As should be noted on the plans, *"Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."*
20. Prior to any earthmoving or land-disturbing activity on the site to be cleared graded, install all necessary Best Management Practices (BMPs). If no work on a phase or within a drainage area is to be done at the time, no BMPs are necessary, until just prior to such LDAs.
21. Install construction exit(s) by cutting in the entrance(s) off the existing road(s), installing geotextile fabric per Manual and ASTM M288-96, separation requirements. Install 1.5" to 3.5" rock at least 6" thick based on anticipated traffic, and at least 20 feet wide, unless a single family lot entrance per Manual.
22. Delineate / mark all stream / State Water buffers to keep them in their natural undisturbed state, unless Variance received from EPD.
23. Install perimeter controls per plan, State Law, Issuing Authority Ordinance, and field inspectors. The Design Professional should be involved in any possible modifications to the LDA plan based upon necessary field modifications.
24. Along buffers, install wire-backed silt fence. But, be sure to install silt fence on the contour, and per the Manual. Do not exceed the drainage area / spacing in the Manual or failure will result. Sediment traps, basins, terracing, innovative grading, etc. will assist in saving money on structural measures and ensure adequacy of BMPs.
25. Once site BMPs are in place, and IA Inspector has released the site (if required), clearing, grubbing, and other land-disturbing activities may occur.
26. Modify BMPs as necessary during the construction. (NOTE: Many issuing authorities require design professional to inspect the site every 2 weeks and sign a certification.)
27. Monitoring of sites per NPDES as required. Note: high NTU readings mean something upslope is not working -- fix it! ! ! If you can physically see sediment accumulation "icing" the stream / State Water, immediately install BMPs to bring the project into compliance. Properly designed BMPs by qualified design professionals will save money in the long run.
28. Disturb no more area than is necessary. Keep natural vegetation on sites until you need to do land-disturbing activities. This will save money.

29. Stabilize site areas as quickly as possible. Stabilization under State Law is 70% ground cover with growing grass with mulch (properly limed and fertilized), or 90% mulch cover (ie: 3"-4" of hay or straw mulch).
30. When sodding, remember to leave BMPs in place as long as possible in event of rain.
31. Protect storm sewer inlets from "dirty water" as much as possible. Do not use inlet protection as the only means of sediment control. Use it only as the last filtration of surface water runoff. This will alleviate clogging of materials and flooding of roads.
32. Stabilize roads with at least stone as soon as possible.
33. Ensure that storm sewer pipes outlet on grade -- not up in the air -- to lessen erosion at outfalls.
34. Stabilize site with permanent vegetation as the site progresses. This includes lime, fertilizer, seed and mulch (Erosion Control Blankets on slopes of 2.5H to 1V or steeper).
35. There is no plan which can totally address all the various consequences of site construction. But, each plan must be able to adapt to the widely variable field conditions, and the owner / developer / builder(s), in consultation with their Design Professional(s), are responsible for compliance with all applicable laws <u>*on a daily basis*</u>. If plans or in-field adjustments need to be made, they are to be effected on a timely basis. ***It is not the responsibility of the Issuing Authority (City/County) staff to tell each contractor or owner what to do and how to do it.*** It is up to the owner and his staff to provide such expertise. The Design Professional should be retained and consulted to modify plan and implementation in the field as necessary during construction.
36. Please note the E&S Act / State Law and local Ordinance states an exemption from LDA Permit for single family lots (if less than 1.1 acres, greater than 200 feet from a State Waters) -- provided that adequate BMPs are installed per your Ordinance and State Law. **<u>The lots are not exempt from BMPs.</u>** Additionally, there has been some confusion in the past with local owners / developers. The State Law is as follows: *"12-7-17. Exemptions. (a) (4) The construction of single-family residences, when such are constructed by or under contract with the owner for his or her own occupancy, or the construction of single-family residences not a part of a platted subdivision, a planned community," ..... "provided, however, that construction of any such residence shall conform to the minimum requirements as set forth in subsection (B) of Code Section 12-7-6."*
37. Property owner(s), developers, and contractors should be advised that while the Georgia Erosion and Sedimentation Act and local Ordinance provide for fines of up to $2500. *per day per violation,* the Georgia Water Quality Control Act and the NPDES General Permit GAR100000 provide for fines of up to *$50, 000 per day per violation*. As stated above, *the Federal Clean Water Act provides for third party citizen lawsuits for Permit violations as well.*
38. State Law, County Ordinance, and the NPDES General Permit GAR100000 are quite clear: 12-7-6(b)(9) "To the extent necessary, sediment in run-off water must be trapped by the use of debris basins, sediment basins, silt traps, or similar measures until the disturbed area is stabilized." Also see attached page 19 of 40

(NPDES GAR100000) Part IV.D.2.a.(3).Sediment Basins. Unless the offsite or non-disturbed area is routed around the disturbed area and basin, it is to be considered in the drainage area design of the basin.

39. The NPDES General Permit GAR100000 goes further to explain the State requirements. It states:

> "(3). Sediment basins. For common drainage locations a temporary (or permanent) sediment basin providing at least 1800 cubic feet (67 cubic yards) of storage per acre drained, or equivalent control measures, shall be provided until final stabilization of the site. The 1800 cubic feet (67 cubic yards) of storage area per acre drained does not apply to flows from off-site areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin."

40. While there is silt fence below many of the prior approved and permitted LDAs, it is not adequate, nor is it in accordance with the Manual for Erosion and Sediment Control In Georgia. The drainage areas above most silt fence as planned and installed in the past is too large, and the spacing of silt fence based upon slope (often 10' to 20' per Manual; and a maximum drainage area of 1/2 acre when wire backed, 1/4 acre when standard installation) was not considered.

41. From the Manual these spacings based upon slope are:

Silt fence, like all **Best Management Practices** in Georgia, is to be **designed** to withstand the **25 year 24 hour storm magnitude** per State Law.

Criteria For Silt Fence Placement

Land Slope (%)	Max. Slope Length above fence (Ft)
<2	100
2 to 5	75
5 to 10	50
10 to 20	25
>20	15

Note: The maximum design life for silt fence should be 6 months. Ultraviolet radiation in sunlight deteriorates all geotextile materials. Straw / hay bales shall not be used if the project duration is expected to exceed three months.

42. Apparently, plans have been submitted and approved / permitted in the past using silt fence as the "*sediment storage*" / sediment control device. Calculations from the design professionals are apparently included in the plan submission to show sediment storage of 67 cubic yards (1800 cubic feet) per acre is available behind the silt fence.

43. The horrendous failure of the silt fences on numerous sites in the past provide all the example necessary to know that the BMPs installed were totally inadequate. As we discuss in our NPDES Short Courses, **silt fence is not a sediment control BMP**. It is to be used at the source -- at the disturbed area -- as an erosion control

BMP. It should never be used to store sediment against -- that defeats the whole purpose of silt fence.

44. **In the future, any plan submitted which delineates silt fence to be used as such should be denied.**

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Specific suggestions for plans and on-site implementation:

45. All denuded or disturbed areas should be stabilized with lime, fertilizer, seed and mulch (or at least mulch at times of the year when seeding is not possible) within 14 days from the time of disturbance per Manual.
46. Per the Manual, *"Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance (DS1). Maintenance shall be required to maintain appropriate depth and 90% cover (le: 2" to 4" for dry straw or hay). Temporary grassing, instead of mulch, can be applied to rough areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used (DS2). Final stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures, at least 70% of the soil surface is uniformly covered in permanent vegetation..."*
47. Per the Manual, *"Erosion control is of primary importance during land-disturbing activities, but sediment storage must be available on the site.Temporary sediment basins and retrofitted detention ponds most commonly achieve the required 67 cubic yards per acre of disturbed area of storage. Some situations may call for the use of practices other than those mentioned above. Appropriate sediment storage **must** be available on the site **PRIOR** to any land-disturbing activities."*
48. Repair and maintain the silt fence which is installed. There is to be no more than 1 /4 acre of drainage area on any 100 linear feet of silt fence (100 feet above the fence line on a 100 foot fence is roughly 1/4 acre). If the drainage area is larger, failure of the fence is probable. Silt fencing is to be installed parallel to existing contours or constructed in level alignments. Ends of fencing must be extended 8 - 10 feet, traveling upslope at 45 degrees to the alignment of the main fencing section.
49. In areas of concentrated flow (but not in live streams / State Waters), the use of stone check dams, rock filters, sediment traps, sediment basins, etc. may be utilized. Any silt fencing which has been undermined or topped must be replaced with rock filter outlets immediately.
50. All silt fence installed on a property is to be trenched in according to the Manual For Erosion And Sediment Control In Georgia. The formation of concentrated flows on the drainage slope above a filter fabric fence installation is not permitted. If concentrated flows do occur, direct slope stabilization measures are to be employed to prevent such conditions.
51. Filter fabric fences are not to be placed in any area of concentrated flows. The fence installation is to be inspected after every precipitation event. Any necessary repairs will be made immediately. Any accumulated sediments are to be removed

as required to keep the fence functional. In all cases, remove the deposits where accumulations reach 1/2 the above ground height of the fence for wire backed fences, and 1/3 the above ground height of the fence for standard installation. All undercutting or erosion of the toe anchor trench will be repaired immediately with compacted backfill materials.

52. Near the top of slope for a road, install a diversion across the road and outlet into a stabilized wooded or grassed area. Typically every 100 feet (less per manual with added slope) downslope of the road, similar diversions are to be graded in. These diversions may be flattened by spreading out the base to allow easier access of vehicular traffic, but still conform to the specifications in the Manual. If the road surface is stoned, the same general shape should remain. This will alleviate the erosive conditions on the road and in the ditch. Where a diversion drains downslope or off a steeper slope, install a check dam to lessen erosive velocity and compliance with State Law and local Ordinance. Stone check dams may be utilized in lieu of the above. Additionally, a stone check dam is often useful at the low end of a cul-de-sac, or turn in a road to lessen velocity on denuded areas, or fill slopes.

Road Grade (percent)	**Distance Between Diversions (feet)**
1	400
2	250
5	125
10	80
15	60
20	50

53. Sediment basins and traps are to be kept out of live streams and intermittent streams. Erosion control (use of mulches, grass, and grading to slow water velocity, and silt fence close to the source) is preferable to sediment control (basins, traps, etc.) because it is less space consuming, does a better job, and is actually cheaper in the long run. Construction of traps and basins is to be in accordance with at least the minimum requirements / specifications in the Manual. Use of dewatering devices such as floating siphons is advisable.
54. Inlet protection is to be in accordance with the Manual, including "pigs in a blanket".
55. All permits for work near streams and drainageways shall be obtained from the US Army Corps Of Engineers (Wetlands jurisdictional determination) and GA Department Of Natural Resources Environmental Protection Division. Stream buffers (minimum 25 feet -- 50 feet for designated trout streams) shall be followed, unless a variance is obtained from EPD. The buffer applies to all portions of the definition of State's Waters. **Trees may be cut, but when logs are removed, or stumps grubbed it is considered a Land Disturbing Activity.**
56. Erosion controls are still needed even after the lot has been seeded and mulched, until such time as grass cover is obtained on at least 70% of the ground surface. It is commendable that sod is placed as the ultimate lawn cover on new lots.

However, proper E&SC's must be followed up to and including the time that the sod is in place. Controls are not to be removed until all sod on a lot is installed.

57. Rights-of-way are to be stabilized with lime, fertilizer, seed and mulch (at least temporarily) to prevent sediment on roads, in streams and on adjacent property.

58. Property owners, developers, and contractors should be advised that while the Erosion and Sedimentation Act and local Ordinance provides for fines of up to $2500. per day per violation, the Georgia Water Quality Control Act and NPDES General Permit GAR100000 provide for fines of up to $50,000 per day per violation.

59. **NOTE: Effective August 1, 2000 a new EPD NPDES Permit for storm water discharges from construction site activities (GAR 100000) requires a permit be applied for on all construction activities disturbing more than five acres, including tracts of less than five acres that are part of a larger common development. The Permit is retroactive to all on-going construction which began prior to that date. The Law requires daily, weekly, and monthly inspections and monitoring of storm water discharges for turbidity during certain rain events. *The onsite monitoring of storm water discharges should continue, and the data used to upgrade BMPs as necessary to ensure compliance.* It is noted to the owner, and the design professional(s), that high NTUs mean additional measures are needed. This Law is not a responsibility of the Issuing Authority to enforce, however the E&S Act is -- as a Certified Issuing Authority.** *The Federal Clean Water Act provides for third party citizen lawsuits for Permit violations as well. However, it may be beneficial to request a copy of the submitted NOI from the LDA Permittee prior to start of work.*

60. ***The onsite monitoring of storm water discharges should continue, and the data used to upgrade BMPs as necessary to ensure compliance.*** **It is noted to the owner, and the design professional(s), that high NTUs mean additional measures are needed. This Law is not a responsibility of the City/County to enforce, however the E&S Act is for the City/County, as a Certified Issuing Authority.**

61. **Please note that the ORIGINAL LAND DISTURBING ACTIVITY PERMIT holder is responsible for all land disturbing activity on the property – even if the lots are sold.** Some liability may be alleviated if the original LDA permit holder writes into his agreements of sale specific wording which ties all future development to the approved LDA Plan and Permit, including reference to State Law and Issuing Authority Ordinance.

62. **The "exemption" from LDA Permit (BMPs are still required) for single family lots may apply if not the following: *"...constructed by or under contract with the owner for his or her own occupancy, or the construction of single-family residences not a part of a platted subdivision, a planned community, or an association of other residential lots consisting of more than two lots..."***

63. Rock for the paving base should be applied to all disturbed road areas proposed as roads immediately or as soon as practicable. Paving the areas will further alleviate erosion on those areas, however, the velocity at the area directly below the paved areas must be considered and rock check dams, etc. installed to slow velocity of flow. Silt fence is not an acceptable alternative below such heavy flow areas.

64. All construction activities on a subdivision are covered under State Law and local Ordinance. Individual lot construction must conform to Best Management Practices. The overall erosion and sedimentation control plan should note the sequence of activities to be followed and state BMP's for each activity. Individual lot construction should also be spelled out. Each individual lot contractor is responsible for construction and land disturbing activity on his lot.
65. The construction areas on lots under construction, should be cleared of debris and all disturbed and / or denuded areas are to be at least seeded with a temporary cover grass. Seeding shall be defined as, and include, lime, fertilizer, seed and mulch in accordance with the Manual. It is preferable to fine grade these areas and permanently seed as quickly as possible.
66. All outfalls from storm sewers and drainage channels are to be stabilized with seeding (as above), and rock or other suitable material to control erosive velocity.
67. The Design Professional should be consulted to modify plan and implementation in the field as necessary during construction.
68. As a minimum, the specifications in the Manual and compliance with State Law are to be the norm. The Checklist should be followed as a minimum for plan review and preparation.
69. Erosion and sedimentation controls must be constructed, stabilized, and functional before any land disturbance occurs. Until the site is stabilized, all erosion and sedimentation controls must be maintained properly. Maintenance must include inspections of all E&SC's after each storm event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and renetting, must be performed immediately. Should any measures contained within the approved plan prove incapable of adequately controlling erosion or removing sediment from on-site flows prior to discharge or of stabilizing the surfaces involved, additional measures must be immediately implemented by the owner / developer / contractor to eliminate all such problems.
70. All Best Management Practices, per State Law, are required (as a minimum) to be designed for the 25 year storm. That is a storm magnitude rainfall which on the average has the probability of being equaled or exceeded once every 25 years. As an example, in Carroll (&Haralson) County, the 25 year magnitude storm rainfalls are as follows (from TP-40):

25 year storm,	
30 minute duration	2.3"
1 hour duration	2.9"
2 hour duration	3.6"
3 hour duration	3.95"
6 hour duration	4.7"
12 hour duration	5.7"
24 hour duration	**6.8"**
50 year storm, 24 hour duration	7.5"
100 year storm, 24 hour duration	8.0"